IN THE CLAIMS:

Please amend claims 25, 28-30 and 37-40, as shown below in the detailed listing of all claims which are, or were, in the application:

Claims 1-20 (Canceled).

21. (Previously presented) An apparatus to assist a patient's respiration by delivering air to a patient through a mask, said mask being designed to be connected on the first extremity of a tube, said apparatus comprising:

a control unit to adjust the pressure delivered by a blower of said apparatus,

a first pressure sensor for sensing a pressure PM at said first tube extremity and being connected to said control unit, and

a second pressure sensor for sensing a pressure PB at the air output of said blower and being connected to said control unit;

such that, when a tube is connected to said mask and connected to said apparatus on its said second extremity, the air flowing from the apparatus to the mask, said control unit is able to calculate the airflow at said second extremity of the tube from

said pressures PM and PB and from an airflow resistance coefficient K_T of said tube;

wherein when a tube is connected between said apparatus and a shell with a traversing hole having a known airflow resistance coefficient K_S, the air flowing from the apparatus to said shell, the measured pressures PM and PB are sent to said control unit which calculates the tube airflow resistance coefficient K_T from these measured pressures and from the said coefficient K_S.

22. (Previously presented) The apparatus according to claim 21, wherein the control unit comprises offset compensation means for compensating the possible difference of gauging between the two pressure sensors.

23. (Previously presented) An apparatus to assist a patient's respiration by delivering air to a patient through a mask, said mask being designed to be connected on one first extremity of a tube, said apparatus comprising:

a control unit to adjust the pressure delivered by a blower of said apparatus,

a first pressure sensor for sensing a pressure PM at said first tube extremity and being connected to said control unit, and

a second pressure sensor for sensing a pressure PB at the air output of said blower and being connected to said control unit;

such that, when a tube is connected to said mask and connected to said apparatus on its said second extremity, the air flowing from the apparatus to the mask, said control unit is able to calculate the airflow at said second extremity of the tube from said pressures PM and PB and from an airflow resistance coefficient K_T of said tube;

wherein the control unit comprises offset compensation means for compensating the possible difference of gauging between the two pressure sensors.

24. (Previously presented) The apparatus according to claim 23, wherein when a tube is connected between said apparatus and a shell with a traversing hole having a known airflow resistance coefficient K_S, the air flowing from the apparatus to said shell, the measured pressures PM and PB are sent to said control unit which calculates the tube airflow resistance coefficient K_T from these measured pressures and from the said coefficient K_S.

25. (Currently amended) An apparatus according to ~~claim 22~~ claim 23, wherein said offset compensation means comprise:

a microprocessor,

a digital to analog converter connected to said microprocessor in order to convert said microprocessor's digital data to analog data,

an analog subtractor having inputs connected to the second pressure sensor, to the first pressure sensor, and to said digital analog converter,

said microprocessor calculating, when the blower is not functioning, the difference between the two pressures measured by said first and second pressure sensors and then sending the value C of this difference to said digital to analog converter, which converts said value C to analog data and drives it to said analog subtractor, which subtracts the pressure PB measured by said second pressure sensor and said value C to the pressure PM measured by said second pressure sensor and sends the corresponding result D to the microprocessor, which will modify the C value until said D result equals zero, said microprocessor capturing the C value when said D result equals zero, enabling the control unit to correct the difference of offsets between the pressure sensors.

26. (Previously presented) An apparatus according to claim 25, further comprising an analog amplifier connected to said analog subtractor in order to amplify the signal corresponding to said D result and to send it to said microprocessor, thus enabling said microprocessor to have an accurate adjustment of said value C until said result D reaches the value zero.

27. (Previously presented) An apparatus according to claim 26, further comprising analog to digital converters connected between the microprocessor and the said first pressure sensor, between the microprocessor and the said second pressure sensor, and between the microprocessor and the said analog amplifier, so that the microprocessor is provided with only digital data.

28. (Currently amended) The apparatus according to ~~claim 21~~ claim 23, wherein when at least one filter is placed at one tube's extremity, and wherein said control unit is able to calculate the airflow at said second extremity of the tube from these measured pressures PM and PB and from the airflow resistance coefficient K_T of said tube and from the airflow resistance coefficient K_F of said filter.

29. (Currently amended) An apparatus according to ~~claim 21~~ claim 23, wherein said control unit comprises a nonvolatile memory in which the control unit stores, as a couple of values, the two pressures PM(J) and PB(J), measured at each said pressure sensors when said control unit forces the blower to deliver a determined constant pressure I at one of the two sensors, so that when at least two couples of pressures corresponding to two different said determined constant pressure I are stored, the control unit is able to calculate an average of said coefficient K_T.

30. (Currently amended) The apparatus according to ~~claim 21~~ claim 23, wherein said control unit comprises an estimation module connected to the means for detecting the patient's breathing parameters, in order that the estimation module is able to determine when the patient is inspiring or expiring and in response the pressure to apply to the patient's mask, so that the control unit adjusts the pressure delivered by the blower.

31. (Previously presented) The apparatus according to claim 30, wherein the control unit comprises a nonvolatile memory in which a clinician can enter clinical settings comprising at least the

treatment pressure and possibly the pressure to apply according to the patient's breathing parameters, said estimation module applying the pressure according to these clinical settings and to the patient's breathing parameters.

32. (Previously presented) The apparatus according to claim 31, wherein the patient can enter patient settings in said nonvolatile memory, said estimator applying the pressure according to these patient settings and to the patient's breathing parameters within bounds given by the clinician settings.

33. (Previously presented) The apparatus of claim 30, in which the estimation module is able to determine that an event (E_1, E_2 or E_3) occurs in patient's breathing thus enabling said control unit to adjust the tension to apply to the blower to adjust the pressure at patient's mask.

34. (Previously presented) The apparatus of claim 30, wherein said means for detecting the patient's breathing parameters enable the control unit to compute the airflow at patient's mask, said

comparator determining that an event (E_1, E_2 or E_3) is occurring with the airflow parameters or shape.

35. (Previously presented) The apparatus according to claim 30, wherein said estimation module has an inspiration output where said estimation module set the mask pressure PM value during inspiration and wherein said estimation module has an expiration output, and wherein said estimation module set the mask pressure PM value during expiration, said control unit comprising a switch which is connected alternatively to the inspiration output or expiration output according to the patient's breathing.

36. (Previously presented) The apparatus according to claim 30, wherein the apparatus further comprises a starting means which when actuated enables the estimation module to determine if a breathing activity is detected, the estimator module sending the instruction to stop the blower if no activity is sensed after a given delay.

37. (Currently amended) The apparatus of ~~claim 21~~ <u>claim 23</u>, further comprising a Frequency Shift Keying (FSK) modulator which transforms the binary data sent by the apparatus sensors or

elements in a modulation of the frequency of the tension applied on a voltage controlled current source, connected to the external power supply, so that the voltage controlled current source transmit the modulation corresponding to the data, a FSK demodulator converting the voltage frequency modulation into binary data and transmitting it to the elements, so that each sensor or module connected to the power source is able to receive or transmit information.

38. (Currently amended) Set for calibrating a tube used in apparatus to assist patient's respiration comprising:

an apparatus according to ~~claim 21~~ claim 23

a shell with a traversing hole having a known airflow resistance coefficient K_S.

39. (Currently amended) Process for calibrating a tube used in apparatus to assist a patient's respiration by using the apparatus according to ~~claim 21~~ claim 23, said process comprising:

connecting a first tube's extremity to the blower of said apparatus,

connecting said first pressure sensor to measure the pressure PM at a second tube's extremity,

connecting said second extremity to a shell with a traversing hole having a known airflow resistance coefficient K_s,

switching the blower on,

instructing said control unit to measure the pressures on said first pressure sensor and on the second pressure sensor, which is measuring the pressure PB at the blower's apparatus outlet, and

calculating the value of the tube airflow resistance coefficient K_t from these measured pressures PM and PB and from the said coefficient K_s.

40. (Currently amended) Process for calibrating the tube used in apparatus to assist patient's respiration, and for calibrating the tube by using the apparatus according to ~~claim 21~~ claim 23, said process comprising:

connecting a first tube's extremity to the blower of said apparatus,

connecting said first pressure sensor to measure the pressure PM at a second tube's extremity,

connecting said second extremity to a shell with a traversing hole having a known airflow resistance coefficient K_S,

switching the blower on,

fixing at a value I the pressure provided and measured on one pressure sensor,

instructing said control unit to measure the pressures on said first pressure sensor and on second pressure sensor, which is measuring the pressure PB at the blower's apparatus outlet,

storing these measures PM(J) and PB(J) as a couple of measures associated to said value I,

repeating a number of time N the steps 5 to 6 of said process, said value I being different for each time, so that each couples of pressures is associated with one value I,

calculating on average of the airflow resistance coefficient K_T from these measured pressures PM and PB and from the said coefficient K_S.